



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/687,811	10/20/2003	Takeshi Ono	2003_1458A	2618
52349 7590 04/28/2009 WENDEROTH, LIND & PONACK L.L.P. 1030 15th Street, N.W. Suite 400 East Washington, DC 20005-1503				
EXAMINER				
WEINSTEIN, LEONARD J				
ART UNIT		PAPER NUMBER		
3746				
MAIL DATE		DELIVERY MODE		
04/28/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/687,811

Applicant(s)

ONO ET AL

Examiner

LEONARD J. WEINSTEIN

Art Unit

3746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 February 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-16, 18, 19, 21-23, 25, 26, 28 and 30-32 is/are pending in the application.
- 4a) Of the above claim(s) 1-12, 17, 20, 24, 27, 29 and 33-35 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13-16, 18, 19, 21-23, 25, 26, 28 and 30-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-848)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 19, 2009 has been entered.
2. The examiner acknowledges the amendments to claim 1 and notes that claims 33-35 have been canceled.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. Claims 13-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park 6,422,833 in view of Suzuki et al. 3,664,771, further in view of Gallmeyer US

5,660,256. Park teaches all the limitations for a hermetic compressor including: **[claim 13]** a compressor element 30 elastically supported in an enclosed container 10 a cup-shaped stopper 50 fixed to an inner upper part of said enclosed container 10, a crankshaft 2 associated with said compressor element 30, with an upper end portion, section of element 2 extending into element 50 as shown in figure 2, of said crankshaft 2 extending into said cup-shaped stopper 50, and being spaced from said inner peripheral surface 51 of said cup-shaped stopper 50 with no structure existing between said upper end portion, top end of element 2, and said inner peripheral surface, element 51 of element 50, and a motor element 20 for driving said compressor element 30; **[claims 16, 19, 23, and 26]** a cup-shaped stopper 50 comprises a ring member 51; **[claims 18, 21, 25, 28, 30, and 31]** and a compressor element 30 includes a compressor chamber 31a and a piston 32 for reciprocating within said compressor chamber 31a in back and forth directions.

Park fails to teach the following limitations that are taught by Suzuki including: **[claim 13]** a cup-shaped stopper 16 having a protrusion 17 extending inwardly from a continuous inner peripheral surface, inside of element 16, of said cup-shaped stopper 16, a crankshaft 7 associated with a compressor element 8, with an end portion of said crankshaft 7 extending into said cup-shaped stopper 16, and being spaced from said inner peripheral surface, inner surface of element 16, of said cup-shaped stopper 16 with no structure existing between said end portion, lower end of element 7 extending into element 16, and said inner peripheral surface, inner surface of element 16, such that said end portion of said crank shaft 7 arranged to contact said protrusion 17 and

said inner peripheral surface, inner surface of element 16, upon oscillation of said compressor element 8 wherein a protrusion 17 extends along an axial direction of said crankshaft 7 and is formed along the inner periphery of said cup-shaped stopper 16, and is rigid, such that it does not deform upon contact with said crankshaft 7; **[claim 14]** wherein a protrusion 17 has an apex, as formed by the edge on the inner surface of element 16 located where the flat section of element 17 meets the curved section element 16 (Suzuki - col. 2 ll. 67-70); **[claims 16, 19, 23, and 26]** a cup-shaped stopper 16 comprises a ring member, as general shape of cup stopper is a ring formed by two substantially semicircular members, and said protrusion 17 is formed by deforming an outer peripheral portion of said ring member, as formed by element 16 wherein the semicircular members are integrally joined together with a surface on both and inside and outside to form a joint which acts as a repulsing means, such that a resulting deformation of an inner peripheral portion of said ring member corresponds to said protrusion 17 (Suzuki - col. 2 ll. 2 ll. 67-70); **[claims 18, 21, 25, 28, 30, and 31]** a protrusion 17 extends generally orthogonal to the back and forth directions of a piston 12 reciprocating within a compressor chamber 11 of compressor element 8; **[claim 32]** and an inner peripheral surface, inner surface of element 16, of said cup-shaped stopper 16, comprises an innermost peripheral surface of a cup-shaped stopper, as can be seen in figures 5 and 6 where edge formed by element 17 is the edge of the inner circumference surface of the element 16.

Suzuki teaches the joint between the smooth surface and the semicircular sections forming an edge which constitutes a repulsing means, is formed to prevent a

shaft from rotating along the inner surface of the stopper when a vibration or external force is applied that alters the rotation of the compressor. It is noted by the examiner that this is the same motivation supplied by the instant disclosure on page 5 wherein it is stated that the protrusion is formed to prevent continued rotary motion of a shaft on the inner surface of a cup-shaped stopper. Thus Suzuki teaches the general concept of a protrusion formed inside of a stopper where a crankshaft for compressor extends. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the stopper of Park by deforming and inner surface to create a protrusion as taught by Suzuki in order to prevent continued rotary motion of a crankshaft along an inside of the stopper or protector (Suzuki - col. 1 ll. 34-69).

A combination of the references teaches all the limitations as discussed but fails to teach the limitations of a protrusion formed on inner surface of a stopper, shaft protector, or damper (as defined by element 10 of Gallmeyer), disposed around a rotating shaft that are taught by Gallmeyer including: **[claim 13]** a protrusion 26, formed in the shape of a curved protrusion (fig. 3A-1); **[claims 14, 15, and 22]** a curved protrusion 26 has an apex, innermost point of element 26 in a direction inwards of element 10, and flanks, outer edges of element 26 abutting element 10, on opposite sides of said apex, innermost point of element 26, with said flanks in a direction inwards of element 10, outer edges of element 26 abutting element 10, each having a radius of curvature such that a center of the radius of curvature is positioned outside of said stopper/damper 10, wherein said flanks, outer edges of element 26 abutting element 10, are generally symmetrical relative to one another about said apex, innermost point of

the element 26 in a direction inwards of element 10. Gallmeyer teaches that a curved protrusion, designated by element 26, aids a damper 10 in damping undesirable vibrations caused by a rotary shaft.

Gallmeyer as applied to Susuki alone, teaches the general shape which is claimed. Specifically Gallmeyer shows a semicircular protrusion on the inside of a cylindrical member that surrounds a rotating shaft. Suzuki teaches a cup shaped stopper disposed around the bottom end of a rotating shaft. Suzuki further teaches two embodiments where either a joined surface (fig. 2), or single free floating protrusion (fig. 4), accomplish the objective of preventing a shaft from a continuing contact with and inner wall of the stopper. Suzuki contemplates multiple shapes/configurations for accomplishing the objective of reducing vibrations due to a rotating shaft, and Gallmeyer, irrespective of the material used for protrusions, teaches yet another configuration for dampening shaft vibrations using a protrusion having a different shape. A modification to Suzuki where the joints of the embodiment of figure 2 were modified to form curved protrusions, as taught by Gallmeyer, would involve a change in shape. The modification would involve severing both smooth connecting surfaces (Suzuki col. 2 ll. 65-70; embodiment of figure 2) from the same semicircular section, re-aligning and joining the semicircular sections to form a cylinder, and curving the protrusion formed by the one of the two smooth surfaces that now extends radially inward. The protrusion would be curved in the shaped taught by Gallmeyer, and its floating edge joined to an inner surface of one of the semicircular sections. The examiner notes that Gallmeyer also contemplates multiple shapes for vibration dampening protrusions which suggests

that is was known in the art to alter the shape of such protrusions to achieve the degree of vibration attenuation desired. Since Suzuki and Gallmeyer teach different configurations for limiting the vibration of a shaft through the use a of common mode, an inwardly extending surface/edge/protrusion, it would have been obvious one of ordinary skill in the art would to apply the shape of one the protrusions taught by one reference and to the apparatus of the other reference and vice versa to achieve a desired reduction in vibration and/or noise produced during operation (Suzuki col. 1 ll. 34-39; Gallmeyer col. 2 ll. 28-32). Further it would have been obvious to one or ordinary skill in the art at the time the invention was made to provide a hermetic compressor provided with a crankshaft extending into a stopper as taught by Park, modified to have a liner protrusion along and axial length as taught by Suzuki, further modified so that a protrusion has a convex shape with and apex disposed at an inner most point of a stopper/damper as taught by Gallmeyer in order to dampen undesirable vibrations caused by a rotary shaft (Gallmeyer - col. 2 ll. 28-32).

Response to Arguments

6. Applicant's arguments filed February 19, 2009 have been fully considered but they are not persuasive. With respect to the rejection under 35 U.S.C. §103(a) of claims 13-16, 18, 19, 21-23, 25, 26, 28, and 30-33 as being unpatentable over Park 6,422,833 in view of Suzuki et al. 3,664,771, further in view of Gallmeyer US 5,660,256 the applicant argues that the curved protrusion claimed of Gallmeyer is not rigid and there is no reasoning to modify Gallmeyer. The examiner disagrees and notes that applicant has misconstrued the rejection presented. Gallmeyer was relied upon to

teach the general shape of a protrusion which as applied to the protrusion taught by Suzuki rendered the limitations obvious. The examiner did not rely on Gallmeyer as a primary reference and did not suggest a modification to Gallmeyer. Rather Gallmeyer was relied upon for its teaching of an apparatus that reduced vibrations for a rotating shaft with at least one inwardly extending protrusion. The examiner asserts that both Suzuki and Gallmeyer, teach multiple embodiments for a cylindrical member that has at least one inwardly extending protrusions that sporadically interacts with an outer surface of a respective rotating shaft. The objective for the protrusion in both teachings is to reduce vibrations during respective operations in which the shafts are rotated. As discussed above, since both teach Suzuki and Gallmeyer that it was known to apply multiple configurations of protrusions which extend from an inner surface of a cup or cylinder and reduce vibrations due to rotating shaft surrounded by the cup or cylinder, it would have been obvious to one of ordinary skill in the art would to apply the shape of one the protrusions taught by one reference and to the apparatus of the other reference to achieve a desired vibration and noise (Suzuki col. 1 ll. 62-69) attenuation.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEONARD J. WEINSTEIN whose telephone number is (571)272-9961. The examiner can normally be reached on Monday - Thursday 7:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on (571) 272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devon C Kramer/
Supervisory Patent Examiner, Art
Unit 3746

/Leonard J Weinstein/
Examiner, Art Unit 3746